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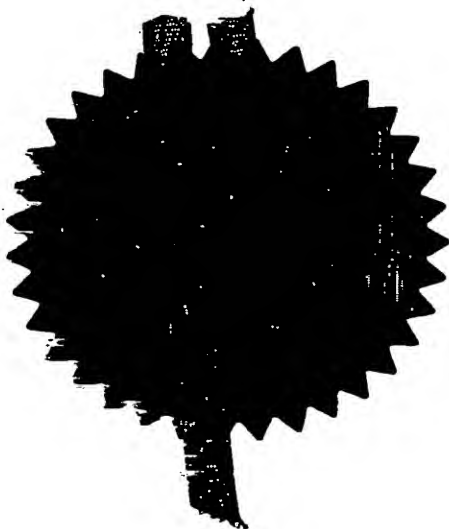
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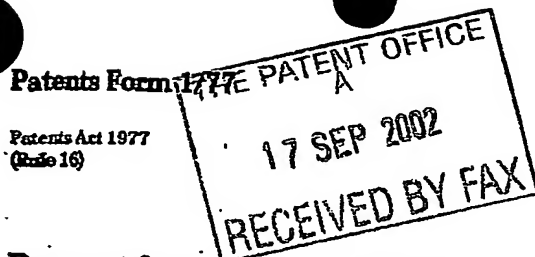
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1/77

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1. Your reference

mqa.2505.uk.jaf7SEP02 E748867-1 D10002

2. Patent application number

(The Patent Office will fill in this part)

0221544.0

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Mobiqa Limited
111 George Street
Edinburgh
EH2 4JN

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

8465726001

United Kingdom

4. Title of the invention

Barcode technology

5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Kennedys Patent Agency Limited
Queen's House, Floor 5
19-29 St Vincent Place
Glasgow
G1 2DT

Patents ADP number (if you know it)

8058240002

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number
(if you know it)

Date of filing
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

- a) any applicant named in part 3 is not an inventor, or
 - b) there is an inventor who is not named as an applicant, or
 - c) any named applicant is a corporate body.
- See note (d))

Yes

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Description	13
Claim(s)	—
Abstract	—
Drawing(s)	—

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Priority documents	—
Translations of priority documents	—
Statement of inventorship and right to grant of a patent (Patents Form 7/77)	—
Request for preliminary examination and search (Patents Form 9/77)	—
Request for substantive examination (Patents Form 10/77)	—
Any other documents (please specify)	—

11.

I/We request the grant of a patent on the basis of this application.

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Date

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12. Name and daytime telephone number of person to contact in the United Kingdom

Jim Adams - 0141 226 6826

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Barcode Technology

The present invention relates to barcodes, in particular delivering barcodes to a mobile device.

The barcode platform of the present invention enables barcodes to be delivered to a mobile phone. The barcodes are redeemed by scanning the display of the mobile phone.

The core technology platform supports processes in a number of applications. Additional components are defined to support the specific steps in such solutions.

The mobile solution has a number of unique aspects when compared to traditional methods such as paper or internet email. These include:

- Instant Delivery. The barcode is delivered to the mobile phone almost immediately.
- Reach. The consumer can be reached wherever they are.
- Increased Redemption. Unlike paper vouchers which may be left behind, a mobile phone is normally carried everywhere.

It is an object of the present invention to deliver barcodes to a mobile device.

According to a first aspect of the present invention, there is provided a system comprising one or more of a message processor, a database, a barcode encoder, a message engine, a queue controller, a message optimiser, a message router and a gateway.

According to a second aspect of the present invention there is provided a method including one or more of registration, matching an offer with a database of customer profiles, delivering a mobile barcode, redeeming and authentication.

Optionally the method further comprises the steps of delivering a promotional message and processing a purchase transaction.

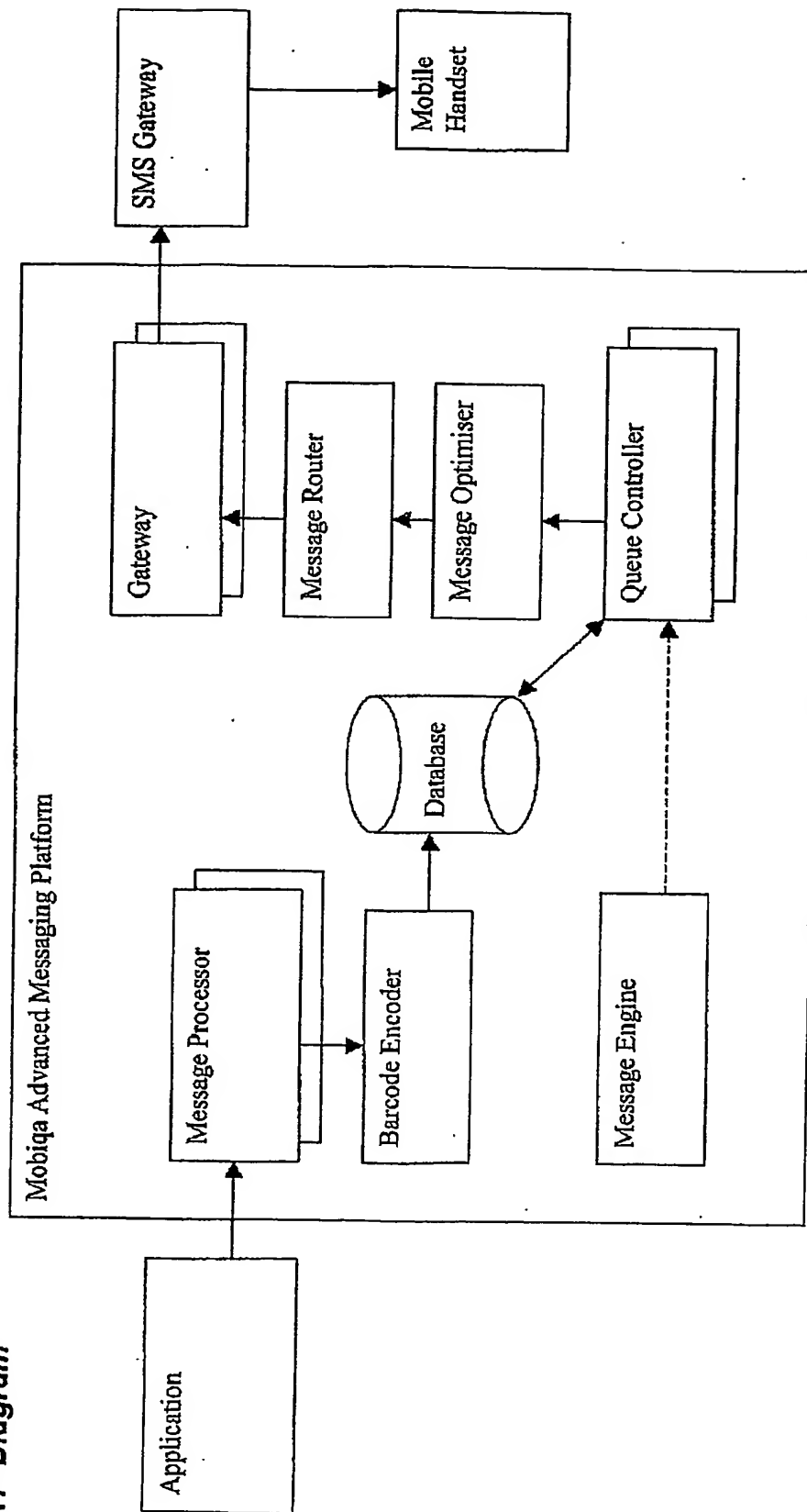
Optionally the method further comprises the step of generating a random barcode.

In order to provide a better understanding of the present invention, an embodiment will now be described by way of example only and with reference to the accompanying Figures.

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1. Core Technology Platform

1.1 Diagram



1.2 Component Descriptions

The individual components are described below.

1.2.1 Application

The application interfaces to the advanced mobile messaging platform using XML content delivered over the internet http protocol. The application solutions for specific markets are defined in section 3.

1.2.2 Message Processor

The Message Processor is started automatically in response to the delivery of message content to a specified URL. The message content is provided in XML format, and delivered using the http post protocol. The XML is a list of messages containing information including:

- Mobile phone number
- Barcode number and symbology
- Additional text content (optional)
- Recipient details such as Name (optional)
- Handset and Network details (optional)

The Message Processor processes the messages and stores them in the database for retrieval by the Queue Controller.

The Barcode Encoder is invoked to generate barcode images from the barcode number and symbology. The images are stored as Pictures in the database.

Customer systems can be integrated with the mobile messaging platform through the message processor.

1.2.3 Database

The database stores the following core entities:

- Barcodes – Barcodes with a particular number and symbology
- Pictures – Pictures (may represent a barcode image)
- Handset – information on a particular handset including owner details, mobile number, model, etc.
- Messages – Outbound and inbound messages
- Gateways – Network messaging gateways

1.2.4 Barcode Encoder

The barcode encoder generates the barcode image for a specified barcode and symbology. The resulting picture is stored in the database in binary form. The encoder supports both linear barcodes such as EAN-8, EAN-13, UPC-A, etc. as well as 2D barcodes such as DataMatrix, PDF-417, etc.

A similar approach can be used for other advanced message types such as smart tickets.

1.2.5 Message Router

The message router chooses the optimal network gateway based on rules stored in the database. Multiple gateway connections can be supported for load balancing and scalability. Where there is more than one possible route, the gateway with the lowest latency is chosen.

1.2.6 Message Optimiser

The message optimiser chooses the optimal message format depending on the capabilities of the target handset. For basic handsets, a simple text message will be delivered. Otherwise, subject to the handset supporting the required display dimensions and colour depth, pictures are delivered using the richest format available.

1.2.7 Message Engine

The Message Engine starts a separate queue controller for each message priority level (1-3). The Message engine also starts the gateways.

1.2.8 Queue Controller(s)

The Queue Controllers poll the database at periodic intervals to retrieve all messages with the relevant priority. The messages are then fed through the Message Optimiser and Message Routers and out through the selected gateway. The message processing queueing frequency may be controlled by a configurable heartbeat interval to limit throughput on a particular network connection as required.

1.2.9 Gateway(s)

The gateways are the route to the external SMS gateways or SMS centres over a network. The gateways maintain a queue of messages sorted by priority. A number of different SMS gateway technologies are supported including XML/http, SMPP, GSM terminals, etc. Alternatively the gateway can be an email gateway, delivering the messages as an email message. Pictures may be attached as a GIF image.

Gateways can be buffered or unbuffered. Unbuffered gateways simply deliver a single message at a time. Buffered gateways batch together a number of messages before delivery.

1.2.10 SMS Gateway

The SMS gateway is a gateway to the mobile network short messaging service. Alternatively, this may be a direct connection to the mobile network operator's messaging centre. The SMS gateway may support enhanced messages (EMS) such as picture messages. The SMS gateway may be a multi-media message (MMS) gateway for delivery of multimedia messages including high-resolution colour images and video.

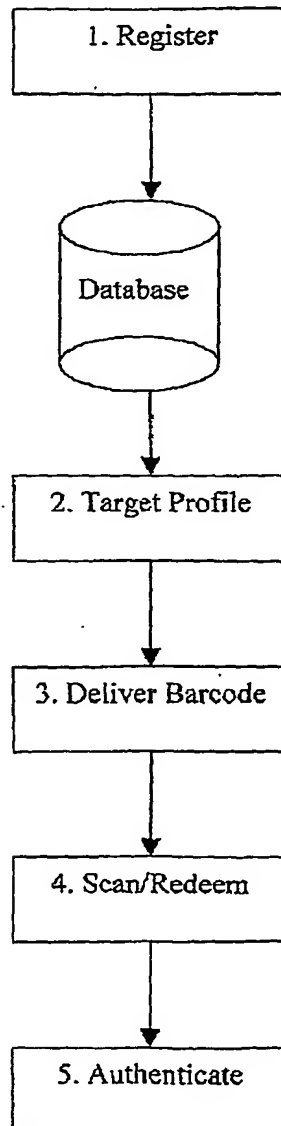
1.2.11 Mobile Handset

The mobile handset can be a mobile phone or other wireless-enabled device such as a PDA.

2. Core Process

The core mobile barcode generation, delivery, and redemption process is described below. This process is customised for specific market solutions as described in section 3.

2.1 Diagram



2.2 Steps

2.2.1 Registration

The consumer opts-in to receive barcodes by registering with the supplier. Registration may be through a variety of channels including internet web site, telephone call centre, paper forms, or text message.

The registration details are stored in the database.

2.2.2 Database

The database contains customer contact and profiling information. This information includes:

- Customer details and contact information including mobile number and possibly name, email address, postal address, photograph, etc.
- Customer demographics including age, sex, etc.
- Customer preferences
- Customer buying history

2.2.3 Target Profile

An offer for a product, service, or information is matched with the database of customer profiles. The matching criteria may include one or more of:

- Demographics
- Preferences/Product Criteria
- Buying History

The result of the match is a list of mobile numbers for contact purposes and profile information for message personalisation.

2.2.4 Deliver Mobile Barcode

The specified barcodes are generated from the number(s) provided and delivered to the list of mobile numbers using the messaging platform.

The delivery of a barcode is recorded in the database for subsequent authentication purposes.

2.2.5 Redeem

The barcode is redeemed in the same way as any product containing a barcode, by scanning the mobile phone display using a conventional barcode scanner.

2.2.6 Authenticate

The barcode is authenticated by examining the barcode delivery records and retrieving the associated customer details. The customer details, possibly including a photograph, may be displayed on a computer display for human validation.

Barcode redemption is recorded in the database for audit purposes.

If this barcode is to be redeemed only once, then the barcode record in the database is marked as redeemed, and cannot be redeemed again.

3. Market Specific Solutions

Specific solutions based on the core technology platform are defined for a number of markets:

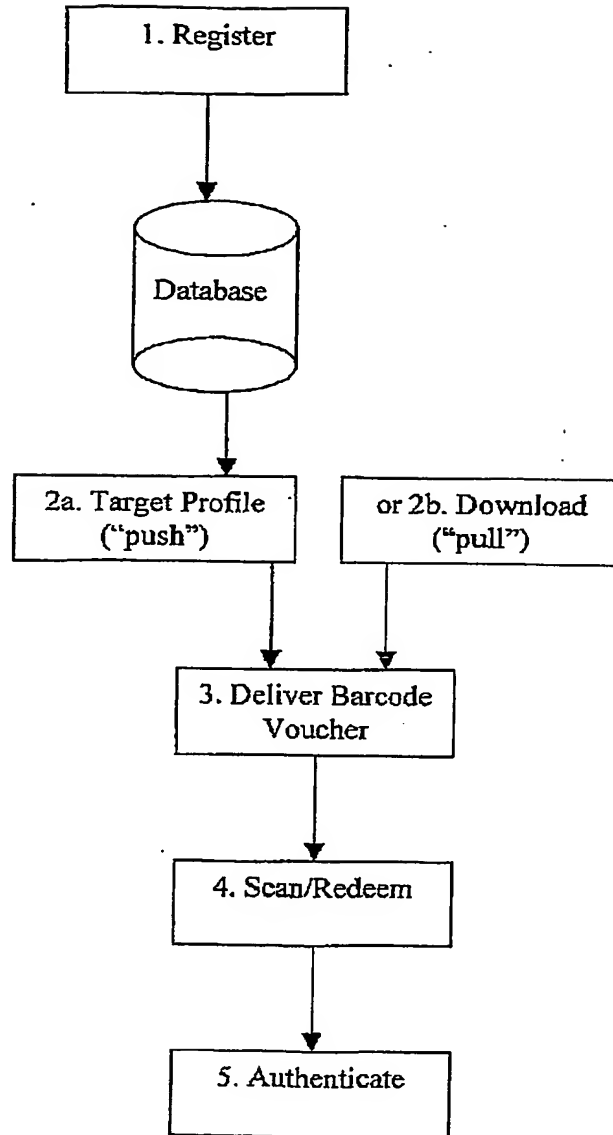
- Retail Vouchers
- Ticketing
- Security

3.1 Retail Vouchers

The mobile barcode solution is customised for the retail voucher market. The mobile barcode represents a discount voucher which is redeemed by scanning in a retail outlet.

Barcodes representing discount vouchers may be redeemed multiple times without any authentication. Indeed, viral marketing may be encouraged through forwarding of the mobile barcode to friends and family.

3.1.1 Diagram



3.1.2 Specific Steps

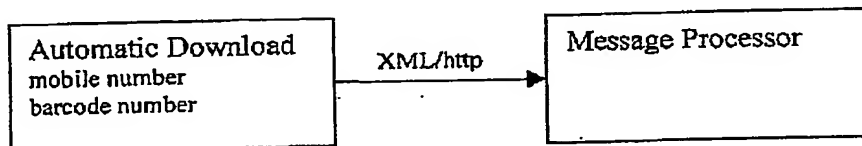
The Voucher Download ("pull") is initiated by a consumer via a number of channels including:

- Web site
- Telephone
- Mobile text Message sent to a supplier mobile number

In each case, the recipient's mobile number is captured in order that the mobile barcode may be delivered.

3.1.3 Specific Components

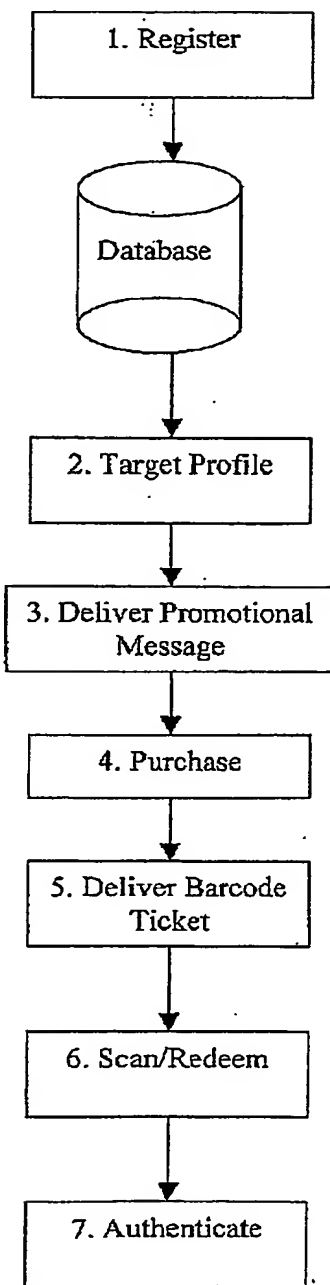
The solution builds on the core process with the Automatic Download component. The automatic download component is invoked from a web site, automated telephone system, or through receipt of a text message. The component takes the mobile number and barcode number and invokes the Message Processor to deliver the mobile barcode.



3.2 Ticketing

The mobile barcode solution is customised for ticketing applications. The mobile barcode represents a ticket that is redeemed by scanning the phone display at the venue.

3.2.1 Diagram



3.2.2 Specific Steps

Specific steps in the mobile ticketing solution are:

- Deliver Promotional Message
- Purchase

An example promotional message might be:

Ticket available for Sat.- Call 0800 123456 or reply "1" to buy.

The promotional message may be delivered as a simple text message, or might be a richer message including text and pictures.

The purchase may be achieved through a number of channels including:

- Ticket sales call centre
- Web site
- Text message reply

Payment may be received through one of many existing methods including credit card and existing account. When payment is accepted, then the mobile barcode ticket is delivered.

3.2.3 Specific Components

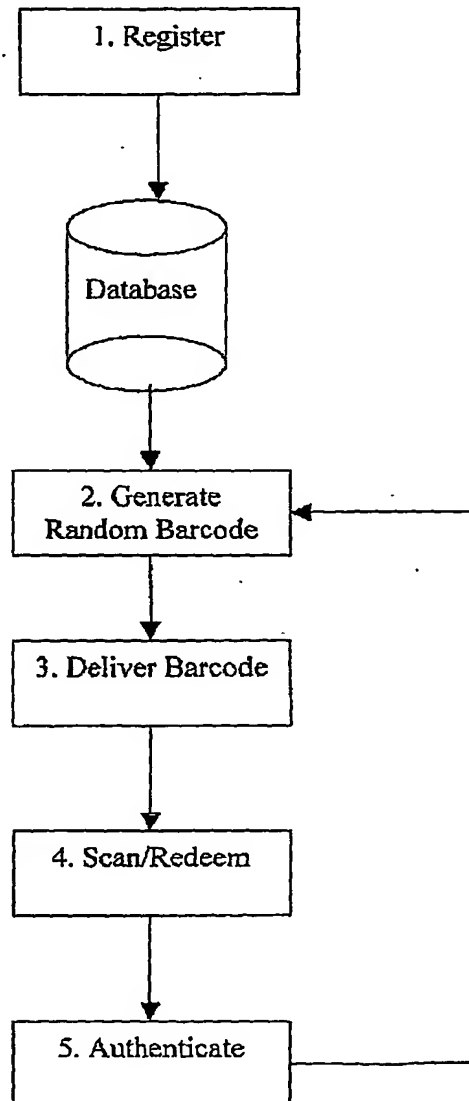
As the Message Processor supports simple text messages as well as more sophisticated data (barcodes), the promotional message is delivered using the core platform.

The ticket purchase is achieved using traditional methods.

3.3 Security

The mobile barcode solution is customised for security applications. The mobile barcode represents an identity that is validated by scanning the phone display. Upon validation, access can be granted to a secure location, or a product can be provided.

3.3.1 Diagram



3.3.2 Specific Steps

There is an automatic random barcode generation step. A new random barcode may optionally be generated and delivered every time a barcode is redeemed.

3.3.3 Specific Components

The solution builds on the core process with the Random barcode generator component. The Random barcode generator automatically generates a random barcode number. The barcode number generated is unique amongst unredeemed barcodes in the database.

4. Unique Features

Key innovative features of the Mobiqu solutions are:

- Targetting using a customer profile database
- Dynamic barcode image generation from barcode number and symbology
- Delivery of barcode to mobile phone or other wireless device
- Redemption and authentication of barcode by scanning display
- Specific processes for particular applications

Although the embodiments of the invention described with reference to the drawings comprise computer apparatus and processes performed in computer apparatus, the invention also extends to computer programs, particularly computer programs on or in a carrier, adapted for putting the invention into practice. The program may be in the form of source code, object code, a code of intermediate source and object code such as in partially compiled form suitable for use in the implementation of the processes according to the invention. The carrier may be any entity or device capable of carrying the program.

For example, the carrier may comprise a storage medium, such as ROM, for example a CD ROM or a semiconductor ROM, or a magnetic recording medium, for example, floppy disc or hard disc. Further, the carrier may be a transmissible carrier such as an electrical or optical signal which may be conveyed via electrical or optical cable or by radio or other means.

When the program is embodied in a signal which may be conveyed directly by a cable or other device or means, the carrier may be constituted by such cable or other device or means.

Alternatively, the carrier may be an integrated circuit in which the program is embedded, the integrated circuit being adapted for performing, or for use in the performance of, the relevant processes.

Further modifications and improvements may be added without departing from the scope of the invention herein described.

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